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A Lottery within a Lottery? An Examination of the Distribution of Lottery Funds in England.

Running Title: A Lottery Within A Lottery?

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Abstract

The UK National Lottery has been in operation since 1994. An examination of the regional distribution of awards per head of population suggests marked spatial disparities with London doing particularly well and Scotland, Northern Ireland, Wales and the North East faring much better than other regions. Such disparities also exist at English Local Authority level with funding in London and some major provincial centres doing much better than more rural authorities. Such inequalities may give grounds for concern, given that they appear to replicate those for other types of Government spending. The results of an empirical model designed to explain the spatial distribution of awards suggest that, in addition to a London effect, levels of deprivation have a positive impact. Another important explanatory variable which has a positive impact on lottery funding is the qualifications of residents which might plausibly reflect the quality of lottery bids received from an area. However, once these factors are taken account of, there is little evidence that rural areas fare badly.

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Introduction

The UK National Lottery has been in existence since 1994. Since its inception, a proportion of the revenue from ticket sales has been channelled to "good causes" through some thirteen award bodies in the constituent parts of the UK. Each award body decides on how it allocates funds to projects but, though free from day to day Government control, it has to work within a regulatory framework of Policy and Financial Directions laid down by the Department of Culture Media and Sport (DCMS) in England and the relevant statutory authorities elsewhere (National Audit Office 2000). By June 2006 over £17bn had been raised for the "good causes" (DCMS, Lottery Grants Database).

The National lottery is effectively a tax as some of the proceeds go directly to the government. Moreover half of the value of ticket sales is hypothecated to good causes, at least some of which would otherwise have been financed by more formal taxation. Feehan and Forrest (2007) point out that it is an exceptionally high tax at around 80% of consumers' net expenditure. They also note that there is little justification for such a high tax in terms of negative externalities (as in the case of petrol) or grounds of individual and public health (as in the case of tobacco). Indeed, it might be argued that the Lottery imposes a negative externality by inducing addiction to gambling. Farrell et al (1999), for example, report that the existence of roll-overs gives a boost to ticket sales, which lasts for some time. There are also welfare implications arising from the fact that the Lottery does not seem to be a very efficient

means of raising funds (Farrell et al, 1999; Forrest et al, 2000; Walker, 1998) Indeed, Farrell et al (1999) argue that allocating a higher proportion of sales revenue to prizes would generate a sufficiently large increase in sales that awards to 'good causes' could be increased

A further problem is that, though the tax is voluntary as no-one is forced to play, survey data suggest that it falls most heavily on the poorer sections of the community, with lower class groups more likely to play and spend more than other groups (Sproston, 2003). This conclusion is confirmed by an analysis of earlier data by Farrell and Walker (1999) which concludes that the income elasticity of demand is positive but inelastic. This may reflect expenditure switching with reduced spending on necessities (Smith, 2007) by the relatively poor. On the other hand, richer income groups potentially gain from lower progressive taxes associated with the use of lottery funds as an alternative funding source for good causes. They may also gain from the fact that those good causes (e.g. the Arts) feature more strongly in their utility function than lower income consumers. It is also worth noting that such welfare issues are of wider concern than just for the UK as many countries use lottery funding for areas such as arts and sport (Feehan and Forrest, 2007). Studies of these issues in other countries include Kearney (2005), Scott and Garen (1993), Stanahan and Borg (1998), Walker (1998) and Worthington (2001).

One welfare issue which has received relatively little attention is the regional and sub-regional distribution of lottery expenditure. This is surprising as there

has been considerable research and debate on the general spatial distribution of state spending in the UK. Recent contributions include, for example, Mackay (2001), Gripaios (2002), Heald and Short (2002), McClean and McMilllan (2003), HM Treasury (2003) and Gripaios and Bishop (2005). These studies have revealed wide variations across regions both in terms of "identifiable" public expenditure, for the benefit of a particular population, and "non-identifiable" spending such as that on defence, which is seen, in principle, as benefiting citizens of the UK in total.

As far as the distribution of Lottery grants is concerned, there may have been some in-house studies given the hints in the consultation process prior to the reform of the National Lotteries Act in 2006 that, in the early years: "There were concerns that too much lottery money was going on buildings, and not enough on people, that it was easier for bigger well-established organisations to get access to funding than smaller groups and that some groups and areas were missing out entirely" (DCMS, 2002, p4). Some changes were made as early as 1998 to address these concerns but the DCMS seems to have remained worried that not enough was continuing to get through to deprived communities and locations.

The only independent research on the topic of the spatial distribution of UK lottery funds appears to be the recent study by Feehan and Forrest, (2007). This study examines the distribution of lottery grants across local authority areas (LAs) in England and Wales to examine the issue of regressivity in lottery taxation. Their model relates the level of awards per capita to various

LA socio-economic characteristics and dummies for London and other Metropolitan areas. They find a tendency for big cities, particularly London, to win a disproportionate share of Lottery grants (especially in the Arts). The percentage of graduates (positive impact) and proportion of the population in socio-economic groups 1 and 2 (negative impact) are other significant explanatory variables.

This paper covers some of the same ground as that of Feehan and Forrest (2007) but also extends it. In particular it utilises different explanatory variables and examines directly the impact of levels of deprivation on Lottery grant funding. Further research is justified both by the important welfare issues outlined above and the paucity of work on the regional and local distribution of this aspect of government expenditure relative to mainstream spending. It is also timely in view of the fact that Lottery Funds are to be a major source of funding required infrastructure for the London Olympics.

It is, of course, important to note that it has never been the intention of the government to ensure an equal distribution of lottery funds in per capita terms. Indeed, it has been recognised that specific towns and cities might be the natural locations for some of the activities (e.g. Arts, Heritage) funded by the lottery regardless of wider welfare issues. However, since there was unequal provision of facilities prior to the lottery, for historical reasons, it is a perfectly valid use of lottery funding to try to reduce these cultural inequalities. Moreover, spatial disparities in spending inevitably have important economic

implications and an understanding of the nature of such disparities is of interest from both an academic and policy perspective.

This article examines the spatial distribution of lottery funding both in total and in terms of the six good causes identified in the amended National Lottery Act of 1998, namely arts, sport, heritage, charitable causes, projects to mark the year 2000 and the beginning of the new millennium and, projects on or connected with health, education or the environment (National Audit Office 2000). The analysis begins by assessing the regional and local distribution of awards in broad terms before developing a model to try and explain the spatial pattern of funding. This is then tested using published data and the main findings are outlined. Finally, the article discusses the wider implications of the study.

Lottery Funding in the UK

There are wide variations in lottery funding per head (accumulated through to June 2006) at the broad regional level, ranging from a high of £575 in London to a low of just £163 in the adjacent East of England Government Office region (Table 1). In addition, the North East, Scotland, Northern Ireland and Wales also seem to do well from the lottery, partly replicating the findings for Government expenditure in total (Mackay (2001), Gripaios (2002), Heald and Short (2002), McClean and McMilllan (2003), HM Treasury (2003) and Gripaios and Bishop (2005)).

Whether such a distribution is “fair” is an arguable proposition depending on the extent to which one believes that lottery funding should go on iconic projects, wherever they are most properly located, or, whether it should be skewed towards regions of greater need. A further dimension is whether some notion of fairness should take into account the regional distribution of lottery ticket sales. Table 2 shows that there are considerable variations in participation rates and household expenditure across regions. Thus, some 63% of households in the North East played the lottery in the period 2001/2-2003/4, whereas only 39% of London households did likewise. The data suggest that London and Northern Ireland do particularly well from Lottery grant expenditure relative to ticket sales.

There is no breakdown of ticket sales below regional level, but figures on the distribution of lottery expenditure are published for all local authority jurisdictions in the UK. Table 3 shows the relevant figures for the ten highest and lowest lottery expenditure areas in England, the focus of the work in this article. The differences are considerable, ranging from £29 per head in Hart to £4,407 per head in the City of London. Even given the broad regional figures discussed above, it is perhaps a little surprising that London boroughs occupy eight of the top ten places. It might be thought that London would feature particularly strongly in specific categories of expenditure such as Heritage and the Arts, given the importance of these sectors in the capital both at the present time and historically. Table 4 demonstrates that this is the case with London boroughs occupying the first four places for Arts and the first three for Heritage. However, they are also strongly represented for other categories of

expenditure that might be expected to be more evenly distributed. Indeed, London boroughs occupy the first eight places for Charitable expenditure, and the first three for spending on Health, Education and the Environment. In every category, there are at least 3 London boroughs in the top ten. There are also differences in the extent of spatial variation for the different categories of funding. In England, the smallest variation in expenditure is for the two categories Health, Education and Environment and Sports while the greatest is for Millennium and Heritage (Table 5).

Explaining the spatial distribution of funding

Given the large variations in Lottery funding across spatial areas both in total and for all specific award categories, it is of some interest to try to identify the factors that might explain the observed pattern. Consequently, a model was developed with the dependent variable defined as the log of lottery funding per head of population from January 1995 through to June 2006 (LLOTTPH). More disaggregated models were also estimated for arts (LARTS) Charitable Expenditure (LCHAR), Heritage (LHER), Millennium funding (LMIL), Sport (LSPORT) and Health, Education and the Environment (LHEE). The source of the lottery award expenditure is the DCMS Lottery Grants Database and the area of study was the 354 LAs in England. Of course, there are limitations in using this dependent variable as a measure of local benefits as there may be extensive spill-over benefits across neighbouring LAs. These may be particularly extensive in London and the other large metropolitan areas which contain multiple LAs. However, they are also likely between adjacent urban

and rural areas where the city limits are tightly defined so as to exclude economic hinterlands.

As far as explanatory variables are concerned, an important point to emerge from the discussion and evidence presented in this paper is that some London boroughs do extremely well from lottery funding. There are a number of reasons that might explain this. One is that London, as the capital city, has always been the main location of Arts, Heritage, Sports and other facilities such as teaching hospitals and major universities that could qualify for awards to upgrade or extend existing provision. Moreover, given that London is a major domestic and international tourist destination, it is likely to be a sensible location for completely new projects, on the grounds that any such projects might be expected to be more viable there than elsewhere in the UK and might add to the general attractiveness of the UK as a tourist destination.

Although the unique features of London are important, one might expect the "London effect" to operate particularly in inner London and specific London boroughs. For example, the City of London might be a special case because of its low population, while Westminster is unique because it is the location of many facilities visited by tourists and Londoners alike. Similarly, Greenwich may attract a high level of lottery funding per head because it has the somewhat ill-fated Dome within its boundaries, whilst Kensington and Chelsea is the location for some key museums and educational establishments. Of course, such location-specific factors may be important outside London. A major northern city such as Manchester may attract funding for similar

reasons to London and also for unique factors such as the need to rebuild the centre after the IRA bomb.

Given the potential importance of the "London effect", three alternative dummy variables were utilised to approximate the effect, with the relevant London areas coded 1 in every case. The first (IL1) defined inner London to represent the City of London alone, the second (IL2) included the City of London, Westminster and Greenwich and the third (IL3) also added Islington and Camden.

It is important to recognise that the London dummies only pick up the most obvious outliers in the dataset. More generally, it might be expected that large urban areas would do better than rural or smaller urban ones for the same sort of reasons that might explain the London effect, such as the location of main hospitals, arts facilities, universities and serving markets well beyond local authority boundaries. However, an alternative hypothesis, at least for some aspects of funding, would be that rural and small urban areas might do better from the Lottery because of a greater sense of community enabling them to develop and engender local support for projects. Indeed, such communities may have higher lottery funding per head because many have not had access to other sorts of funds (e.g. Single Regeneration Budget, City Challenge, Neighbourhood Renewal Fund, New Deal for Communities) available elsewhere. Finally, they might do better because of the very fact that, traditionally, they have not had the facilities of large urban areas, leaving open the possibility of remedying the deficit through lottery bids.

The impact of the rurality or urban nature of areas is, therefore, a complex issue and two alternative variables are included to try to account for this. The first is population density (LPOPDENS – the log of population per hectare 2002), which may be a good indicator of scale effects in the provision of new services and, therefore of project viability. The second is a measure of the degree of rurality - the proportion of employment in agriculture and forestry in 2001 (AGRI). There are, of course, important limitations to this variable as it may not account for all self-employment. The above arguments suggest that these variables could potentially take a positive or negative sign. The source of the data is Regional Trends for population and the Census of Population for employment.

Given Government priorities and advice to award boards (see, for example, National Audit Office, 2000, Appendix 2), a further potential explanatory variable is the level of deprivation in specific local authority areas. A high level of deprivation might be expected to lead to more favourable treatment, *ceteris paribus*. The variable used to measure deprivation is the Index of Deprivation (2004) Average Score (DEPRIV) available from the Department of Communities and Local Government.

One important factor which may affect whether specific bids get funding is the quality of the bids. It is not possible to assess this directly. Instead, we use two proxy variables. The first is the proportion of managers and professionals in the local population in 2001 (PROF); the second is the percentage of

residents in an area with qualification levels 4 and 5 (QUAL). Our assumption is that persons involved in writing bids in a professional capacity and/or with better qualifications will be better able to bring their skills to bear on making the case for support by local sports clubs, amateur dramatics and the like. Interestingly, there could be a different explanation. Feehan and Forrest (2007) also use a similar QUAL variable arguing that it is correlated with income and so can be used as a proxy for income. They argue that more affluent areas will benefit disproportionately from lottery funding as the type of activities which the lottery supports are attractive to high income groups and organisations with high income members will find it easier to generate requisite match funding.

Match funding may certainly be important to demonstrate commitment, to reduce the risk to award bodies and to otherwise "oil the wheels". It is not easy to get direct data on this, even in the case of the public sector, for there are many funds operated by bodies such as the European Union, National Government Departments, Local Authorities and various quangos. Moreover, access to some sources may be dependent on some of the factors hypothesised as determining lottery grant funding. This paper includes a limited attempt to examine this issue directly by assessing whether designation as an Objective One European region affects lottery funding. Thus, a dummy variable (OBONE - eligible authorities coded 1) is used to designate the local authorities eligible for such funding in Merseyside, South Yorkshire and Cornwall. Clearly, given the points by Feehan and Forrest

(2007), the match funding explanation may be also partly picked up by other regressors.

Results

The model was tested for the 354 Unitary and District Local Authorities in England using OLS multiple regression. Various formulations were tried but there were clear instances of multicollinearity between two sets of variables. These were AGRI and LPOPDENS which were both used to test for rurality/ scale effects (r=-0.82) and QUAL and PROF (r=0.89) which were used as a proxy for the quality of bids. As a result, it was decided to use one of each pair in a variety of combinations. In practice, it made little difference to the results and so we do not present all variations for either the total model or for individual good causes. In no case was OBONE significant, suggesting that it is either an inadequate measure of availability of match funding or that this is not important in the distribution of grants. Hence it is not included in the reported equations. It also made little difference which inner London dummy was used, so only the equations utilising IL2 are reported.

The results for lottery funding in total are presented in Table 6. The three variations of the basic equation that are reported fit reasonably well for cross-section data, with their explanatory power ranging from 47% to 56%. Equation (1) passes normality, reset and heteroscedasticity tests, whereas version (2) fails the normality test. There was some evidence of heteroscedasticity in equation (3) and the presented results for this equation

reflect standard errors corrected for heteroscedasticity using the jacknife methods. Given these specification issues, version (1) is the preferred variant.

All coefficients are significant in equation (1). Deprivation, the London dummy and QUAL all have the expected positive impact on funding. Of course, the significance of QUAL may either reflect its role as a measure of professional bid writing capability (as we hypothesise), or of some combination of income and availability of match funding as suggested by Feehan and Forrest (2007). The coefficient on LPOPDENS, for which there was no clear prediction, is negative. This suggests that far from being at a disadvantage, rural areas do relatively well from lottery funding once other factors such as deprivation and the London effect are allowed for. This might also be the conclusion drawn from the alternative equation (3), where AGRI is positive and significant.

Details of the results for the individual lottery funds are presented in Table 7. In the reported equations, LPOPDENS is used as the measure of rurality and QUAL as the measure of local professional capabilities. All equations bar Arts and Sports had evidence of heteroscedasticity and hence the standard errors for these equations were corrected using the jacknife method. The explanatory power of the equations differs considerably with the best results being for Charitable expenditure and Arts. For Arts, Heritage funding and Charitable expenditure all variables have the same signs as that for lottery funding in total though IL2 is not significant for Arts or Charitable expenditure. It should be noted that only the Arts and Millennium equations passed

normality tests. This may reflect the fact that large sums of money have gone to a small number of key projects in specific locations. As argued above, this is likely to become even more the case as lottery funds are diverted to finance the London Olympics in 2012.

Millennium funding was directed at special projects in a restricted set of locations and might be expected to follow different rules. This is confirmed as it has one of the weakest fitting equations and only DEPRIV, LPOPDENS and QUAL are significant. Sports spending might be expected to be much more widely distributed and to replicate the pattern of lottery funding in total. In fact, once again only DEPRIV, LPOPDENS and QUAL are significant. Turning finally to Health, Education and Environment spending, the statistically significant coefficients are those on QUAL and DEPRIV.

Conclusions

The welfare aspects of the National Lottery are both interesting and complex. Relevant issues include the general question as to whether the promotion of lotteries is something which the government should be encouraging given the issue of gambling addiction and the consequences of that for individuals and health service provision. In addition, it is debatable as to whether a National Lottery is the most efficient method of raising money for good causes, whether the effective tax rate is appropriate and whether it is regressive. The previous research outlined above suggests that there are problems regarding all of these issues.

In this paper, the main focus has been on a specific welfare issue - whether the regional and local distribution of grant expenditure is "fair". One important aspect of this whether the pattern of expenditure reflects the pattern of ticket sales, a topic which can only be examined at broad regional level. Our conclusion here is that there are clear anomalies. For example, although the North East and East regions have the joint highest average household ticket expenditure per head on the lottery, they are almost at opposite ends of the league table in terms of lottery grants per head. If the East of England does very badly in these terms, then the adjacent region, London, does especially well. Such disparities also apply to Lottery grant expenditure *per se*, for which London heads the league table followed by the North East, Scotland and Wales. Apart from the North East, this seems to replicate the distribution of overall "identifiable" Government expenditure (McKay 2002) for which Scotland, Wales and London are the top three recipients in mainland Britain.

So should we be concerned at these inequalities? It is certainly not surprising that London heads the list – a fact which can be justified on a range of grounds. One is that London, for historical reasons, is the location of many cultural, sporting, heritage, education and health facilities that good cause lottery funding was designed to help. A second is that there are economies of scale in concentrating expenditure in the capital. A third is that improving and concentrating facilities there is the best way of attracting international tourists and their spending. A fourth is that London is the most accessible location for the citizenry of the UK. These are all valid arguments, such that the real

question is the *extent* to which high levels of per capita spending in London can be justified. Is it, for example, justifiable that lottery expenditure per head in the capital is 3.5 times that in the East of England and 3.3 times that in the South East, even allowing for the fact that the residents of (some parts of) the latter two regions have easier access to London facilities than those of more peripheral regions?

There are, of course other welfare issues associated with lottery grant expenditure. One is that, though all UK citizens have access to major projects in London and other large urban centres, they do not have equal access. It is, for example, much less costly in both actual and psychic terms for a resident of London to visit the Millennium Dome or Wembley Stadium or Twickenham than a resident of the South West and that will affect the number of visits. On the other hand, South West residents benefit more from the extensive Lottery Funding given to the Eden Project in Cornwall because it is far easier for them to get there than it is for other UK residents. Of course, there would be winners and losers even if lottery expenditure per head was the same by region because the type and range of facilities supported by the Lottery varies over space. London horticulturalists, for example, may derive little benefit from better sports facilities there or from facilities such as the Eden Project located more than 250 miles away.

This paper has demonstrated that, at local authority level, disparities are even more marked than at the broad regional level, both for Lottery expenditure per head in total and for all types of Lottery award. On the face of it, many small,

relatively rural authorities seem to do poorly while some in large urban areas and especially in Inner London and specific provincial regional centres do very well. However, the empirical results suggest that whilst levels of deprivation are an important predictor of funding per head, perhaps surprisingly, rural areas do not seem to lose out once this and other factors have been taken into account. The qualifications of residents also seems to make a difference to funding, possibly through influencing the quality of bids and/or, as Feehan and Forrest (2007) suggest, because qualifications are a proxy for high income and high income areas may be more capable than poor in delivering match funding.

In any event, no version of the model picks up more than 60% of the variation in the dependent variable suggesting that other factors play an important role and/or that the variables included here are inadequate proxies for hypothesised determinants. There is certainly scope for further research work on, for example, the extent to which different local authorities put in bids and the extent to which they encourage, promote and improve the quality of bids from organisations in their area through, for example, the employment of dedicated and competent Lottery Officers. Another potentially important avenue of research would be the use of better measures of bid quality, which is likely to be difficult, and of the availability and role of match funding in securing Lottery grants. Finally, there is the issue of the extent to which lottery funding is “additional” in a specific locality. Central Government may, for example, make compensating reductions in other grants to Local Authorities that attract lottery spending. Equally, it may mean that the need for match

funding forces local authorities to switch money from other potential expenditures, especially if good cause projects generate a large amount of local interest.

One problem with examining welfare issues at the spatial level is the appropriate unit of analysis. Regions may be too large while, given extensive spillover benefits, local authority areas may be too small. Using functional city regions would be preferable but data problems preclude this at the present time. However, whatever the scale of the analysis, it seems likely that future studies will throw up even more marked disparities in the distribution of Lottery funds given that ministers have indicated that funds are to be diverted from other potential good causes to that of providing the necessary infrastructure for the 2012 Olympics. As these are to be held very largely in London, it will again be the capital which benefits. No doubt some of the money will find its way to the deprived residents of East London but they are not the only or necessarily the most deprived ones in the UK.

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Table 1: Lottery funding accumulated to June 2006

Area	Total	Lottery funding (per '000 persons)
East Midlands	£931,041,414	£221.00
Eastern	£881,655,145	£163.00
London	£4,228,937,074	£575.00
North East	£879,767,847	£350.00
North West	£1,809,091,352	£267.00
Northern Ireland	£580,204,827	£342.00
Scotland	£1,703,623,206	£337.00
South East	£1,403,588,245	£175.00
South West	£1,262,187,157	£254.00
Wales	£902,679,021	£309.00
West Midlands	£1,334,074,085	£252.00
Yorkshire and Humberside	£1,201,278,487	£241.00
UK	£17,118,127,860	£289.00

Source: DCMS Lottery Grants Database.

Table 2: Participation in the National Lottery (2001/2-2003/4)

	% of households	Average household expenditure (£)
North East	63	4.7
North West	57	4.2
Yorks & Humb	55	4.6
E Mids	54	4.3
W Mids	53	4.6
East	49	4.7
London	39	4.6
S East	47	4.3
S West	45	4.2
Wales	54	4.3
Scotland	56	4.2
N Ireland	48	4.1
UK	51	4.4

Source ONS Regional Trends 39.

Table 3: Lottery Funding per head of population to June 2006

Local authority	£per head	Local authority	£ per head
Lowest funding		Highest funding	
Hart	29	Southwark Kensington and	919
Crawley	37	Chelsea	936
Rochford	41	Norwich	972
Erewash	44	Manchester	980
Spelthorne	45	Lambeth	1218
Wyre	48	Camden	1730
South Staffordshire	48	Islington	1871
Castle Point	55	Greenwich	3106
Broxtowe	56	Westminster	3115
Brentwood	62	City of London	4407

Source: DCMS Lottery Grants Database.

Table 4: Lottery Funding per head to June 2006 (Top 10 LA's by funding area)

	Arts	Charities	Heritage
10	South Bucks	Eden	Greenwich
9	Kensington and Chelsea	Isles of Scilly	High Peak
8	Hackney	Hackney	Carrick
7	Salford	Southwark	Cambridge
6	Lambeth	Tower Hamlets	Camden
5	Gateshead	Lambeth	Kennet
4	Islington	Westminster	Purbeck
3	Camden	Camden	Kensington and Chelsea
2	City of London	Islington	Westminster
1	Westminster	City of London	City of London
	Millenium	**Sports**	**Health Educ, Env.**
10	Leicester	Hammersmith and Fulham	St. Helens
9	Camden	Eastleigh	Derbyshire Dales
8	Durham	Norwich	Norwich
7	Portsmouth	Bath and North East Somerset	Castle Morpeth
6	Mid Sussex	Rushcliffe	Exeter
5	Norwich	City of London	Westminster
4	Southwark	Bridgnorth	Durham
3	Lambeth	Manchester	City of London
2	Restormel	Charnwood	Camden
1	Greenwich	Brent	Islington

Source: DCMS Lottery Grants Database

Table 5: Standard Deviation of Lottery Funding to June 2006, by category

Arts	107,614
Charitable Expenditure	88,835
Heritage	119,311
Millennium	150,729
Sports	49,945
Health, Education, Environment	35,961

Source: DCMS Lottery Grants Database.

Table 6: Model estimates for total lottery funding per head

Dependent	*Llottph (1)*	*Llottph (2)*	*Llottph (3)*
Constant	10.9	10.3	9.97
AGRI			.097 (7.9)**
PROF		.053 (8.6)**	
DEPRIV	.061 (16.9)**	.065 (14.3)**	.052 (16.3)**
LPOPDENS	.-.17 (-7.5)**	-.15 (-5.8)**	
QUAL	5.2 (12.7)**		4.6 (9.9)**
IL2	1.7 (5.6)**	2.0 (6.2)**	1.7 (4.0)**
R^2 adj	0.56	0.47	0.55
F	112.9**	78.4**	107.2**

Notes: Figures in brackets are t statistics; the standard errors (and hence t statistics) for equation (3) were corrected for heteroscedasticity using the jacknife method. *indicates significance at 10% level, ** significance at 5% level.

Table 7: Model estimates for category of lottery funding per head

Dependent	*Arts*	*Char*	*Heritage*	*Millen*	*Sports*	*Health*
Constant	7.1	9.8	10.1	3.8	9.6	8.2
QUAL	10.1	4.7	7.6	12.7	3.8	2.6
	(11.7)**	(9.8)**	(7.6)**	(5.3)*	(5.4)**	(3.7)**
DEPRIV	..09	.06	.097	.14	.05	.06
	(11.9)**	(16.4)**	(10.6)**	(8.1)**	(7.5)**	(9.6)**
LPOPDENS	-.2	-.2	-.50	-.36	-.17	.04
	(-4.5)*	(-9.6)**	(-9.3)**	(-3.4)**	(-4.2)**	(0.9)
IL2	.6	.84	1.9	-.49	.27	.48
	(0.9)	(1.0)**	(5.3)**	(-.0.1)	(.51)	(0.9)
R^2 adj	.41	.60	.35	.20	.16	.33
F	60.45**	130.7**	46.8**	21.1**	17.0**	43.3**

Notes: Figures in brackets are t statistics; the standard errors (and hence t statistics) for Char, Heritage, Millen and Health were corrected for heteroscedasticity using the jacknife method *indicates significance at 10% level, ** significance at 5% level.

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